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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/842,771	04/27/2001	Fumito Takemoto	2091-0242P	2813

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EXAMINER	
HANNETT, JAMES M	

ART UNIT	PAPER NUMBER
2612	

DATE MAILED: 10/20/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	09/842,771	TAKEMOTO, FUMITO
	Examiner	Art Unit
	James M Hannett	2612

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *27 April 2001*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-18* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-18* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *27 April 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date 2.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Specification

Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The following title is suggested: Image processing apparatus for carrying out tone conversion processing and color correction processing using a three-dimensional look-up table.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

1: Claims 1, 7, and 13 are rejected under 35 U.S.C. 102(e) as being anticipated by USPN 6,590,678 Nishigaki et al.

2: As for Claim 1, Nishigaki et al teaches on Column 6, Lines 3-16 an image processing method for obtaining processed image data by carrying out tone conversion processing (2005) and color correction processing (2007) on image data obtained by a digital camera. Nishigaki et al teaches on Column 7, Lines 65 – Column 8, Line 15 generating a three-dimensional look-up table (LUT) for carrying out the tone conversion processing (2005) and the color correction processing (2007) on the image data; Nishigaki et al teaches on Column 9, Lines 4-18 obtaining the processed image data (output signal) by converting the image data (input signal) according to the three-dimensional look-up table.

3: As for Claim 7, Claim 7 is rejected for reasons discussed related to Claim 1, since Claim 1 is substantively equivalent to Claim 7.

4: As for Claim 13, Claim 13 is rejected for reasons discussed related to Claim 1, since Claim 1 is substantively equivalent to Claim 13.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5: Claims 3, 9, and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 6,590,678 Nishigaki et al in view of USPN 5,974,173 Kimura.

6: As for Claim 3, Nishigaki et al teaches the use of an image processing apparatus that performs tone and color correction by using a three-dimensional look-up table. However,

Nishigaki et al does not teach the step of setting a number of lattice points in the three-dimensional look-up table according to a number of bits of the image data.

Kimura teaches on Column 4, Lines 6-12 and Column 4, Lines 38-51 and Column 9, Lines 45-52 and Column 10, Lines 1-2 and on Column 3, lines 28-62 that it is advantageous when using three-dimensional look-up table that perform color and tone correction to reduce the bit length of the look-up table in order to reduce memory size. Therefore, Kimura teaches setting the number of lattice points in the three-dimensional look-up table according to the number of bits of the image data

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to reduce the bit length of the look-up table in Nishigaki et al according to the number of bits of the image data as taught by Kimura in order to reduce memory size.

7: As for Claim 9, Claim 9 is rejected for reasons discussed related to Claim 3, since Claim 3 is substantively equivalent to Claim 9.

8: As for Claim 15, Claim 15 is rejected for reasons discussed related to Claim 3, since Claim 3 is substantively equivalent to Claim 15.

9: Claims 2, 4, 5, 8, 10, 11, 14, 16 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 6,590,678 Nishigaki et al in view of 5,489,996 Oku et al.

10: In regards to Claim 2, Nishigaki et al teaches the use of an image processing apparatus that uses three-dimensional look-up tables to correct tone and color in digital images. However, Nishigaki et al does not teach the step of generating the three-dimensional look-up table for a model of a digital camera.

Oku et al teaches on Column 1, lines 17-20 and on Column 2, lines 37-63 the use of an image processing apparatus that uses three-dimensional look-up tables to correct tone and color in digital images. Oku et al further teaches that it is advantageous to perform the color correction in consideration of the color reproduction characteristics of the image recording apparatus in order to record an image with good color reproduction.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to perform the color correction and tone correction process of Nishigaki et al in consideration of the color reproduction characteristics of the image recording apparatus as taught by Oku et al in order to record an image with good color reproduction.

11: In regards to Claim 4, Nishigaki et al teaches on Column 8, Lines 7-26 comparing a number of pixels (M) in an image represented by the image data with the number of lattice points (N) in the three-dimensional look-up table. Nishigaki et al teaches on Column 8, Lines 13-15 and on Column 8, Line 43 the step of generating the three-dimensional look-up table being a step of generating the three-dimensional look-up table in the case where the number of the pixels (M) is larger than the number of the lattice points (N), Nishigaki et al teaches that the number of input signals is greater than the number of lattice points. Nishigaki et al teaches on Column 9, Lines 4-18 the step of obtaining the processed image data (output signal) being a step of obtaining the processed image data by converting the image data (input image data) according to the three-dimensional look-up table (LUT) in the case where the number of the pixels (M) is larger than the number of the lattice points (N). Nishigaki et al teaches that the number of input signals (M) is larger than the number of lattice points (N) and does not teach that the number of lattice points

can be equal to the number of input signals. Nishigaki et al teaches that this is done to save memory space.

Oku et al teaches on Column 2, Lines 6-15 that it was well known to use three-dimensional look-up tables where the input color signals and the output color signals are each expressed with 8-bits, if a large memory size is practical to use. Therefore, the number of input signals is equal to the number of lattice points.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to carrying out the tone conversion processing (2005) and the color correction processing (2007) on each of the pixels (M) in the image represented by the image data (input signal) in the case where the number of the pixels (M) is equal to the number of the lattice points.

12: As for Claim 5, Nishigaki et al teaches on Column 6, Lines 3-16 an image processing method for obtaining processed image data by carrying out tone conversion processing (2005) and color correction processing (2007) on image data obtained by a digital camera. Nishigaki et al teaches on Column 8, Lines 7-26 comparing a number of lattice points (N) in a three-dimensional look-up table (LUT) used for carrying out the tone conversion processing (2005) and the color correction processing (2007) on the image data with a number pixels (M) in an image represented by the image data; Nishigaki et al teaches on Column 8, Lines 13-15 and on Column 8, Line 43 the step of generating the three-dimensional look-up table, Nishigaki et al teaches on Column 9, Lines 4-18 the step of obtaining the processed image data (output signal) being a step of obtaining the processed image data by converting the image data (input image data) according to the three-dimensional look-up table (LUT) in the case where the number of

the pixels (M) is larger than the number of the lattice points (N). Nishigaki et al teaches that the number of input signals (M) is larger than the number of lattice points (N) and does not teach that the number of lattice points can be equal to the number of input signals. Nishigaki et al teaches that this is done to save memory space.

Oku et al teaches on Column 2, Lines 6-15 that it was well known to use three-dimensional look-up tables where the input color signals and the output color signals are each expressed with 8-bits, if a large memory size is practical to use. Therefore, the number of input signals is equal to the number of lattice points.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to carrying out the tone conversion processing (2005) and the color correction processing (2007) on each of the pixels (M) in the image represented by the image data (input signal) in the case where the number of the pixels (M) is equal to the number of the lattice points.

13: In regards to Claim 8, Claim 8 is rejected for reasons discussed related to Claim 2, since Claim 2 is substantively equivalent to Claim 8.

14: In regards to Claim 10, Claim 10 is rejected for reasons discussed related to Claim 4, since Claim 4 is substantively equivalent to Claim 10.

15: As for Claim 11, Nishigaki et al teaches on Column 6, Lines 3-16 an image processing apparatus for obtaining processed image data by carrying out tone conversion processing (2005) and color correction processing (2007) on image data. Nishigaki et al teaches on Column 7, Lines 65 – Column 8, Line 15 and on Column 8, Lines 7-26 three-dimensional look-up table generating means for comparing the number of lattice points (N) in a three-dimensional look-up

table used for the tone conversion processing (2005) and the color correction processing (2007) on the image data with the number of pixels (M) in an image represented by the image data. Nishigaki et al teaches on Column 8, Lines 13-15 and on Column 8, Line 43 generating the three-dimensional look-up table (LUT) in the case where the number of the pixels (M) is larger than the number of the lattice points (N); Nishigaki et al teaches on Column 9, Lines 4-18 processing means for obtaining the processed image data (output signal) by converting the image data (input signal) according to the three-dimensional look-up table (LUT) in the case where the number of the pixels (M) is larger than the number of the lattice points (N). Nishigaki et al teaches that the number of input signals (M) is larger than the number of lattice points (N) and does not teach that the number of lattice points can be equal to the number of input signals. Nishigaki et al teaches that this is done to save memory space.

Oku et al teaches on Column 2, Lines 6-15 that it was well known to use three-dimensional look-up tables where the input color signals and the output color signals are each expressed with 8-bits, if a large memory size is practical to use. Therefore, the number of input signals is equal to the number of lattice points.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to carrying out the tone conversion processing (2005) and the color correction processing (2007) on each of the pixels (M) in the image represented by the image data (input signal) in the case where the number of the pixels (M) is equal to the number of the lattice points.

16: In regards to Claim 14, Claim 14 is rejected for reasons discussed related to Claim 2, since Claim 2 is substantively equivalent to Claim 14.

17: In regards to Claim 16, Claim 16 is rejected for reasons discussed related to Claim 4, since Claim 4 is substantively equivalent to Claim 16.

18: As for Claim 17, Claim 17 is rejected for reasons discussed related to Claim 5, since Claim 5 is substantively equivalent to Claim 17.

19: Claims 6, 12 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 6,590,678 Nishigaki et al in view of 5,489,996 Oku et al in view of USPN 5,974,173 Kimura.

20: In regards to Claim 6, Nishigaki et al in view of Oku et al teaches the use of an image processing apparatus that performs tone and color correction by using a three-dimensional look-up table. However, Nishigaki et al does not teach the step of setting a number of lattice points in the three-dimensional look-up table according to a number of bits of the image data.

Kimura teaches on Column 4, Lines 6-12 and Column 4, Lines 38-51 and Column 9, Lines 45-52 and Column 10, Lines 1-2 and on Column 3, lines 28-62 that it is advantageous when using three-dimensional look-up table that perform color and tone correction to reduce the bit length of the look-up table in order to reduce memory size. Therefore, Kimura teaches setting the number of lattice points in the three-dimensional look-up table according to the number of bits of the image data

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to reduce the bit length of the look-up table in Nishigaki et al according to the number of bits of the image data as taught by Kimura in order to reduce memory size.

21: In regards to Claim 12, Nishigaki et al in view of Oku et al teaches the use of an image processing apparatus that performs tone and color correction by using a three-dimensional look-

up table. However, Nishigaki et al does not teach the step of setting a number of lattice points in the three-dimensional look-up table according to a number of bits of the image data.

Kimura teaches on Column 4, Lines 6-12 and Column 4, Lines 38-51 and Column 9, Lines 45-52 and Column 10, Lines 1-2 and on Column 3, lines 28-62 that it is advantageous when using three-dimensional look-up table that perform color and tone correction to reduce the bit length of the look-up table in order to reduce memory size. Therefore, Kimura teaches setting the number of lattice points in the three-dimensional look-up table according to the number of bits of the image data

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to reduce the bit length of the look-up table in Nishigaki et al according to the number of bits of the image data as taught by Kimura in order to reduce memory size.

22: In regards to Claim 18, Claim 18 is rejected for reasons discussed related to Claim 6, since Claim 6 is substantively equivalent to Claim 18.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. USPN 5,592,312 Noguchi teaches the use of a color correction process that uses look-up tables; USPN 5,805,213 Spaulding et al teaches an apparatus for color-correcting a digital camera.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to James M Hannett whose telephone number is 703-305-7880. The examiner can normally be reached on 8:00 am to 5:00 pm M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wendy Garber can be reached on 703-305-4929. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

James M. Hannett
Examiner
Art Unit 2612

JMH
October 11, 2004

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